

Application No. 09/508,934
Amendment dated March 19, 2004
Reply to Office Action of Nov. 19, 2003 & Advisory Action of Feb. 24, 2004

Remarks

This amendment is responsive to the final Office Action mailed November 19, 2003 and to the Advisory Action mailed February 24, 2004 in connection with the above-identified patent application. In the Action, independent claim 5 was withdrawn from further consideration under 37 C.F.R. § 1.142(b). Claims 25 and 26 were rejected Under 35 U.S.C. § 112, second paragraph. Claims 18, 19 and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by PCT Publication WO 96/22629 ("WO '629"). Lastly, claims 1, 11-17, 20, 21, 23, 24, 27, and 28 were allowed. In the Advisory Action, the Examiner refused to enter the First Amendment After Final Rejection because, according to him, the new structural limitations added to each of claims 18, 19, and 22 raise new issues requiring further reconsideration and search.

THE NON-ART REJECTIONS

Referring again to the Office Action, claims 25 and 26 were rejected because, according to the Examiner, the phrase "the first partial coil winding step" of claim 25 lacked antecedent basis.

Applicants have amended independent claim 11 above to provide antecedent basis to address the Examiner's concerns regarding claim 25. It is respectfully submitted that the claim is now in proper form.

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THE ART REJECTIONS

With reference yet once again to the Office Action, claims 18, 19, and 22 were rejected as being anticipated by WO '629. The Examiner took the position that the claims are "product-by-Process" and that the WO '629 publication discloses the final structure of four groups of conductors on stator teeth.

Although claims 18, 19, and 22 have been canceled above, applicants do not concede the Examiner's position regarding their patentability. It is respectfully submitted that the WO '629 document only discloses that the magnetic coupling of the coils of the four-face DC motor is improved when the corresponding coupled coils are wound on the stator core simultaneously. However, the WO '629 document does not teach that the coils can be wound on the corresponding stator teeth in more than a single step, each winding step including winding $2n$ conductor simultaneously and selecting a first and a second group of n conductors and assigning each group to a first or second coil. By separation of the winding into partial winding steps, closer proximity of the individual wires of the coils or intermingling therebetween is achieved, at least on balance, to arrive at a more uniform winding distribution as viewed in cross section through the coil. In particular, the above is especially true when winding only two wires respectively, one wire per coil, because the two wires are placed close to each other over the entire coil length.

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It is respectfully submitted that the Examiner cannot ignore the steps of "selecting and repeating" in claims 18 and 19 as the steps have a decisive influence on the structure of the resultant coil wound in this manner. The novel approach of dividing the winding process into several steps has the effect that in each step a smaller number of conductors are wound on the stator core. Thus, when dividing the $2n$ conductors into two groups and allocating each group to a first and second coil, the magnetic coupling between the two coils is improved as compared to the method of winding all conductors from the two coils in a single step.

It is respectfully submitted that the WO '629 patent does not teach, suggest, or fairly disclose a stator having conductors wound thereon in partial winding steps. The natural result or conclusion of the partial winding steps is a final structure of intermingled conductors having close mutual proximity to arrive at a substantially uniform winding distribution.

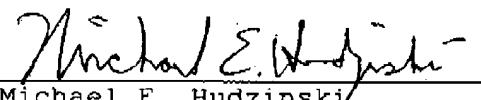
Conclusion

In view of the above amendments, comments, and arguments presented, applicants respectfully submit that all pending claims are patentably distinct and unobvious over the references of record.

Allowance of all claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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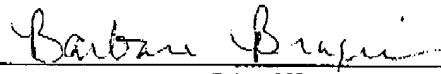
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